

Claims:

1. A method of testing current sinking and sourcing capability of a driver in an IC comprising the steps of:
 positioning a charge storage element of known capacitive value at an output of said driver,
 charging said charge storage element to a known voltage value,
 applying a pulse of known duration and voltage level to a tri-state control input of said driver,
 measuring a resulting voltage value at said output of said driver, and
 determining whether a current flow during said application of said pulse is within testing limits by comparing an expected voltage value against said resulting voltage value.
2. A method of testing as recited in claim 1 wherein said step of measuring comprises the step of comparing said resulting voltage value against a threshold voltage value.
3. A method of testing as recited in claim 2 and further comprising the step of calculating said threshold voltage value based upon a capacitive value of said charge storage element, said known voltage value, said pulse duration, and said pulse voltage level.
4. A method of testing as recited in claim 2 and further comprising repeating said step of comparing

10099518.031402

said resulting voltage value against a plurality of threshold voltage values.

5. A method of testing as recited in claim 1 wherein said step of applying said pulse comprises the step of supplying said pulse from a channel of an ATE to a plurality of said drivers.
6. A method of testing as recited in claim 1 wherein said step of applying said pulse comprises generating said pulse in a programmable pulse generator circuit.
7. A method of testing as recited in claim 1 and further comprising the step of scanning values into scannable registers to establish testing parameters.
8. A method of testing as recited in claim 7 wherein said scannable registers control an output driver voltage value and a driver tri-state select.
9. An apparatus for testing current sinking and sourcing capability of a driver circuit in an IC comprising:
the driver circuit,
a charge storage element of known capacitive value at an output of said driver circuit,
an input circuit permitting application of a test pulse of known duration and data input values to said driver circuit, and

10099518.031402

a receiver accepting an output of said driver for determining a threshold voltage value at said driver output.

10. An apparatus as recited in claim 9 wherein said driver circuit comprises a PFET in series with an NFET and said charge storage element is electrically disposed between an interconnection of said PFET and said NFET and a reference potential.
11. An apparatus as recited in claim 9 wherein said charge storage element comprises a FET with drain and source terminals electrically connected.
12. An apparatus as recited in claim 9 and further comprising a means for scanning values into said input circuit to control said application of said test pulse of known duration and data input values.
13. A method for testing a driver comprising the steps of:
 - calculating an expected resulting voltage value of a charge storage element after application of a pulse of known voltage and duration through said driver,
 - storing a known charge on said charge storage element,
 - tri-stating said driver,
 - applying said pulse, and
 - determining whether a resulting voltage value of said charge storage element is greater than or less than said expected resulting voltage value.

14. A method for testing a driver output circuit as recited in claim 13 wherein said step of calculating said expected resulting voltage value makes use of the equation $\frac{it}{C}$ where i is an expected current flow, t is a duration of said pulse, and C is the capacitive value of said charge storage element.
15. A method for testing a driver output circuit as recited in claim 13 wherein said step of determining comprises the steps of iteratively comparing said resulting voltage value against different known threshold voltage values until it is determined that said resulting voltage value is between two of the threshold voltage values.
16. A method for testing a driver output circuit as recited in claim 13 wherein said step of determining comprises measuring whether said resulting voltage value is above a known threshold voltage value.
17. A method for testing a driver output circuit as recited in claim 13 wherein said step of determining comprises measuring whether said resulting voltage value is below a known threshold voltage value.